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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,594	04/29/2002	Michel Devic	2988-693	8361

31684 7590 12/22/2005

ARKEMA INC.
PATENT DEPARTMENT - 26TH FLOOR
2000 MARKET STREET
PHILADELPHIA, PA 19103-3222

EXAMINER	
NECKEL, ALEXA DOROSHENK	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,594	DEVIC, MICHEL	
	Examiner	Art Unit	
	Alexa D. Neckel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-30 and 36-38* is/are pending in the application.

4a) Of the above claim(s) *37 and 38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-30,35 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/13/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 17-36 in the reply filed on October 3, 2005 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17-23, 26 and 30-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (4,935,539).

With respect to claim 17, Lee discloses an apparatus comprising:

a cylindrical vertical reactor (10);

means for injecting (18) at the bottom of the reactor (10);

means for discharging (19) at the top of the reactor (10); and

a plurality of centrifugal turbines (13, 14) along a vertical agitating shaft (15).

Lee further discloses wherein the reactants are moved upwardly and outwardly **from the shaft** (col. 4, lines 42-46), thereby inherently in at least some manner, the reactants are drawn toward the shaft in order to be moved outwardly therefrom.

With respect to claim 18, Lee further discloses wherein the turbines (13, 14) are arranged regularly along a single vertical shaft (15) (see figures 1 and 2).

With respect to claim 19, Lee further discloses wherein the reactor comprises counter-baffles (16).

With respect to claim 20, Lee further discloses wherein the reactor comprises a heat exchanger (20).

With respect to claim 21, it can be seen in figure 1 that the height of the reactor is between about 1.5 and about 10 times the diameter of the reactor.

With respect to claim 22, it can be seen in figure 1 that the height of the reactor is between about 2 and about 4 times the diameter of the reactor.

With respect to claim 23, Lee further discloses wherein the turbines are radial (see figures 1-3 and col. 4, lines 34-36).

With respect to claim 26, Lee further discloses wherein the number of turbines is between 2 and 20 (see figures 1 and 2).

With respect to claim 30, Lee further discloses wherein the turbines vanes (29) are arranged in radial formation (see figures 3 and 4).

With respect to claims 31-34, no further structural limitations are recited and therefor the claims continue to read on the apparatus of Lee. The manner of operating a device does not differentiate the apparatus claims from the prior art. MPEP 2114. The material worked upon also does not limit the apparatus claims. MPEP 2115.

With respect to claims 35 and 36, Lee further discloses wherein the reactor comprises at least one filter (20) external to the reactor.

4. Claims 17-19, 21-23 and 25-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiraki et al. (4,243,636).

With respect to claim 17, Shiraki et al. discloses an apparatus comprising:

a cylindrical vertical reactor (1);

means for injecting (2) at the bottom of the reactor (1);

means for discharging (11) at the top of the reactor (1); and

a plurality of centrifugal turbines (5-8) along a vertical agitating shaft (4).

With respect to claim 18, Shiraki et al. further discloses wherein the turbines (5-8) are arranged regularly along a single vertical shaft (4) (see figure 1).

With respect to claim 19, Shiraki et al. further discloses wherein the reactor comprises counter-baffles (9).

With respect to claim 21, it can be seen in figure 1 that the height of the reactor is between about 1.5 and about 10 times the diameter of the reactor.

With respect to claim 22, it can be seen in figure 1 that the height of the reactor is between about 2 and about 4 times the diameter of the reactor.

With respect to claim 23, Shiraki et al. further discloses wherein the turbines are radial (see figure 2).

With respect to claim 25, Shiraki et al. further discloses wherein the turbines (103) can have one or more central openings (109).

With respect to claim 26, Shiraki et al. further discloses wherein the number of turbines is between 2 and 20 (see figure 1 and col. 5, lines 46-50).

With respect to claim 27, Shiraki et al. further discloses wherein the number of turbines is between 3 and 8 (see figure 1 and col. 5, lines 46-50).

With respect to claim 28, Shiraki et al. further discloses wherein the diameter of the turbines is about 0.2 to about 0.5 times the diameter of the reactor (col. 6, lines 37-41).

With respect to claim 29, Shiraki et al. further illustrates wherein the thickness of the turbines is about 0.07 to about 0.25 times the diameter of the turbines (see figure 2).

With respect to claim 30, Shiraki et al. further discloses wherein the turbines vanes (29) are arranged in radial formation (see figures 3 and 4).

With respect to claims 31-34, no further structural limitations are recited and therefor the claims continue to read on the apparatus of Shiraki et al. The manner of operating a device does not differentiate the apparatus claims from the prior art. MPEP 2114. The material worked upon also does not limit the apparatus claims. MPEP 2115.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (4,935,539), as applied to claim 17, and further in view of Weetman (6,334,705).

With respect to claim 24, Lee discloses all of the structure as discussed above with respect to claim 17, but fails to disclose wherein the turbines are flanged.

Weetman teaches impellers (turbines) for an axial mixer wherein the blades (12, 14, 16) are flanged (30, 32, 34) which are more effective in flow and dispersing one fluid

into another (col. 1, lines 5-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the flanged blades taught by Weetman in the apparatus of Lee in order to have more effective flow and dispersion.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki et al. (4,243,636), as applied to claim 17, and further in view of Weetman (6,334,705).

With respect to claim 24, Shiraki et al. discloses all of the structure as discussed above with respect to claim 17, but fails to disclose wherein the turbines are flanged.

Weetman teaches impellers (turbines) for an axial mixer wherein the blades (12, 14, 16) are flanged (30, 32, 34) which are more effective in flow and dispersing one fluid into another (col. 1, lines 5-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the flanged blades taught by Weetman in the apparatus of Shiraki et al. in order to have more effective flow and dispersion.

Response to Arguments

8. Applicant's arguments filed October 3, 2005 have been fully considered but they are not persuasive.

Applicant argues that Lee does not read on claim 17 because it does not provide for the centrifugal mixing pattern recited therein.

The examiner respectfully disagrees. As pointed out by applicant, Lee discloses wherein the reactants are "moved upwardly and outwardly **from the shaft** [emphasis added]" (col. 4, lines 42-46), thereby inherently in at least some manner, the reactants

are drawn toward the shaft in order to be moved outwardly therefrom. The rejection is maintained.

Applicant argues that Shiraki et al. does not read on claim 17 because it does not provide for the centrifugal mixing pattern recited therein and points to col. 5, lines 64-68 to support such argument.

The examiner respectfully disagrees with applicant. Applicant's cited portion of the Shiraki et al. reference is directed only towards the lowermost blades (8) of the vessel. The flow pattern achieved by the upper comb-like blades of Shiraki et al. are not explicitly recited, but for reasons similar to that of Lee, above, in at least some manner, the reactants are drawn toward the shaft in order to be moved outwardly therefrom. The rejection is maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa D. Neckel
Primary Examiner
Art Unit 1764

December 12, 2005

Alexa Neckel
ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER